CHAPTER 11

Institutional Integration

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INTRODUCTION

The strategies examined by SNEP represent responses to problems identified in the Sierra Nevada through the SNEP assessments. The strategies are not fully analyzed alternative management schemes, nor does any one strategy address all aspects of the ecosystem. Rather, they are potential components of regional or rangewide alternatives yet to be formulated. As these strategies are taken together, common properties emerge that SNEP suggests will characterize successful approaches to sustainable management of the Sierra Nevada.

WHOLE SYSTEMS

The strategies collectively consider the Sierra Nevada to be a whole system. Although individual SNEP strategies are incomplete, they show how actual solutions must address not just parts of the system but also the ways in which parts interact to create the whole. The full scope of those interactions brings together things hitherto considered separate: core forest areas and matrix, people and nature, regions within and regions outside the Sierra.

The strategies emphasize sustainable management over the entire landscape. For example, the areas of late successional emphasis (ALSE) strategy incorporates management of the lands between core areas of late successional emphasis (i.e., the matrix) and management of core areas themselves. Similarly, the biodiversity management area (BMA) strategy depends largely on the contribution of lands outside the BMAs. The distributed forest conditions strategy proposes that sustainability of late successional forests emerge as a property of an entire landscape, not small reserved portions thereof. Reserves, when discussed, are viewed as part of a larger conservation strategy. Managing the entire landscape for ecosystem sustainability requires that public and private resources and lands be considered together, along with the suite of institutions and rights associated with them.

The diversity of the strategies indicates that addressing whole systems means confronting the full range of system components: physical, biological, and social. The system consists not just of biological structures, such as old-growth stands, but also of ecological functions and human communities—both communities of place within the Sierra and communities of interest elsewhere in the state and nation. SNEP strategies illustrate these components and scales and demonstrate how components could be linked in practice.

The strategies also reveal different scales within the larger Sierran ecosystem. Some strategies respond to regional issues: for example, air quality in the southern Sierra, distributed forest conditions in the eastern Sierra, county buildout on the west slope. Others address truly rangewide concerns: for example the BMAs, ALSEs, and aquatic strategies. The aquatic and air-quality strategies suggest a scale that extends far beyond the range itself.

Finally, the whole system is not static but rather changes over time. The fire strategy addresses a significant source of change in the Sierra and also emphasizes our uncertainty about the historic scope of fire and the risks associated with its purposeful application. Social dimensions of the mountain range change as well. These dynamics are addressed by the county buildout and community well-being strategies. The nature of change requires that management approaches be flexible enough to learn from and adapt to changing ecological and social conditions.

The view of the Sierra as a whole system, or a web of biological and social influences stretching over and beyond the range and evolving over time, suggests that no easy policy or technical “fix” can be implemented in the Sierra Nevada. Many institutions will absorb, elaborate, and recast SNEP strategies to find solutions. Congressional involvement is essential to recasting policy in the Sierra. Existing federal laws constitute part of the web of influences that have served to bring parties together in search of new solutions. The rest of the web is composed of important state and local institutions and their associated laws and policies, as well as affected parties and stakeholders wherever they live. Considerations of cost, local variation in landscape attributes and their conditions, different patterns of land ownership and human communities, as well as other varying factors argue for flexible program design and implementation.

COLLABORATION

Collaboration among various agencies, private interests, and the public at large in the Sierra is the most significant principle that emerges from SNEP strategies. As they collaborate, agencies, private landowners, and the public begin to function as interacting parts of a whole system, and the number of ways to balance use and environmental quality increases exponentially. Collaboration may also encourage private landowners to innovate and to develop creative approaches that will accomplish broad ecological goals in advance of regulations. The mix of lands and resources in the Sierra, including intermingled private and public land, required SNEP to assess ecological conditions at appropriate scales and develop strat-

egies at similar scales. For example, accounting for cumulative watershed effects required that solutions be addressed by all watershed stakeholders. These examples suggest that actual strategies must also extend across property or jurisdictional boundaries.

Successful collaboration requires a mix of expertise and considerable institutional support. Mobilization of people and resources and coordination of activities may require collaboration at a local scale, but as activities engage more technical, financial, or legal issues, specialized expertise usually found in state or federal agencies will be required. Collaboration will succeed to the extent that it receives ongoing support from top management and feeds directly into existing budgets, business processes, and agency missions.

Collaboration springs out of perceived mutual interest. State and federal agencies and other interests have experience in collaborating, especially in response to disasters and threats to life and property. A potential for improvements in service and structure of incentives may also lead to collaboration. In the absence of other threats, avoiding potential regulation remains one of the most powerful incentives to collaborating. Decentralizing control and restructuring agencies to focus on clients may greatly enhance effective collaboration.

Careful restructuring of natural resource laws could encourage participation, thereby reducing the temptation to withdraw and increasing the effectiveness of collaboration. The incentive for collaboration diminishes if alternatives provide apparently quicker, albeit incomplete, resolution for individual participants. Bilateral negotiation rather than full collaboration, for example, probably will lead to only partial solutions, perceptions of bad-faith bargaining, and a retreat to adjudication.

Collaboration will collapse if any of the parties attempts to dominate. Like any negotiation, successful collaboration is based on mutual respect for the rights and equity of all participants. This concept is particularly clear in the case of private landowners, for whom equity is generally expressed in terms of land values. It applies as well to public agencies and takes the form of legal authority, budgets, and scope of action. For members of the public, the form it takes is less established but no less important.

GOAL SETTING

The development of goals is fundamentally a social and political process rather than a technical one. SNEP's contribution lies in defining important dimensions of goals—for instance, old growth, aquatic biodiversity, community well-being—rather than the goals themselves. Identification of specific goals requires active participation of all stakeholders. Although the need for goals to organize human activity may appear self-evident, the barriers to convening and managing the development of ecosystem goals are enormous. Convening such a process requires common acceptance of the whole ecological and social system, joint understanding of how the system works, and a shared sense of the importance of the values at stake. Lake Tahoe is a good example in that its value is tangible to people, it is related to its watershed through water and sediment flows, and it has loss of clarity as the preeminent problem. Other issues that have a central ecological role and impact on economic value, such as the erosion of biodiversity and fire, may also bring stakeholders together.

Public agencies can incorporate collaborative goal setting into their land-management mission. They are already able to contribute technical, legal, and financial expertise to the goal-setting process, and they are also capable of representing and interpreting rangewide and national perspectives. They can also help to convene the full range of stakeholders needed to address issues, ownerships, and jurisdictional and even cultural boundaries. This process may involve trades and negotiations among participants. In so doing, agencies would not direct the goal-setting activities but rather, within legal and practical limits, participate in a manner that allows stakeholders to achieve common understanding and agreement.

FUNDING MANAGEMENT AND RESTORATION

The SNEP strategies focus primarily on technical or planning aspects of management and restoration. Generally they do not attempt to specify cost or funding source. The fire and ALSE strategies propose some harvest of timber and biomass. These activities will produce income but may not cover the full cost of the strategies. None of the strategies are likely to succeed unless they look beyond nearby commodity outputs to identify the full range of beneficiaries of their actions and to devise mechanisms to recover a portion of that benefit. For instance, for those activities in the fire strategy that seek to reduce the likelihood of large, severe wildfire, specific beneficiaries that should be included are local property owners, distant metropolitan water consumers, regional air-quality boards, fire-control agencies, and national disaster relief agencies, among others. Successful projects depend on equitable allocation of costs to appropriate beneficiaries and use of appropriate mechanisms to recover those costs.

Arrangements for funding and cost recovery associated with implementation of the strategies will require innovative approaches that might include establishing fees or markets or allocating rights to be traded. Enabling these mechanisms may require legislative involvement even while retaining local flexibility. Equally, legislative proposals to permit local or regional

cost allocation and recovery should provide opportunities for site-specific experimentation and further modification as these arrangements mature or as the local and regional conditions and objectives change.

REGIONAL CONTEXT

Translation of SNEP strategies into actual policy may proceed more easily through development of regional policies for the different regions of the Sierra. These regions differ in population levels, density, and growth, and in the manner in which they incorporate costs of resource use and environmental risk, governmental coordination, and activism. The pattern of employment, commodity production, and services directly dependent on the Sierra Nevada ecosystem varies greatly across the range; economic linkages clearly define distinct regions within the Sierra. SNEP strategies emphasize different issues in different regions. For instance, the air-quality strategy is important in the southern Sierra, the fire strategy emphasizes the west-central Sierra, and the grazing strategy focuses on the Modoc country and eastern rangelands. Consequently, agencies and other institutions that are critical to the resolution of ecosystem management problems in one region may be much less important in others. Similarly, funding arrangements are likely to vary significantly from region to region. It is, therefore, unlikely that a single model or policy would apply equally well across all regions, except perhaps one that encouraged widespread institutional innovation toward ecosystem stewardship.

MONITORING AND ADAPTING

To determine if the strategies achieve ecosystem sustainability, someone must monitor. To do this requires a commitment to design, finance, and adapt over the long term.

The most effective monitoring programs would generate information on effects at several spatial scales. For instance, the distributed forest conditions strategy attempts to achieve a desired regional condition by implementing treatments incrementally at the watershed level. Monitoring only within watersheds where treatment has proceeded will not answer how well the strategy is achieving the regional condition.

Monitoring a strategy's results relative to its goals is a necessary part of adaptive management. An open process is necessary to build trust; without it, monitoring can fuel conflict rather than reduce it. In many instances, no single agency or group is available that will be considered impartial by all stakeholders, in part, because values influence interpretation as well as methods. Building trust in monitoring processes requires agreement on the choice of methods and multi-stakeholder (or multi-party) involvement. With particularly sensitive issues, all-party participation in monitoring may also be required.

Decision processes must incorporate specific mechanisms for changing the direction of the policy or project. Monitoring data that highlight inadequacies is of little use without a concomitant process for shifting strategies or reallocating resources. The need for institutional flexibility is particularly important. For example, in addressing issues related to the fire ecosystems of the Sierra, unexpected catastrophic fires may quickly change the context of ecosystem management by reducing old growth, degrading watershed condition, or creating new options for fuel management.

The importance of monitoring argues for the establishment of a broadly based convenor to facilitate range- and region-wide coordination. Organization of such a group—whether it arises at the local, regional, or Sierra-wide level—must be structured to fit the need. However construed, it ought to be collaborative in nature, to be authoritative in charge, and to focus on monitoring local conditions for achievement of rangewide goals and strategies. Such a group, for example, could help to assemble information in the year 2000 to examine improvements or changes in the following:

- Quantity and distribution of Sierran old-growth forests
- Status of conditions of concern:
  - ozone levels, local air-quality problems
  - amphibians
  - riparian quality
  - vertebrates at risk
  - community well-being
  - restoration of fire and treatment of fuel conditions
  - trends of native grasses and alien weeds on rangelands
  - foothill habitats
- Other emerging issues

Also inherent in the strategies is a need for a central caretaker of information to develop and maintain data pertinent to rangewide monitoring and planning. A manager would have responsibility for organizing and synthesizing local databases as part of rangewide systems and would ensure coordination of distributed databases. Decentralized input of information, as well as access to existing data sets, could be obtained through the Internet, with public access available on-line or through public terminals at libraries and other public locations. Decentralized information also would facilitate a system whereby public agencies and others could provide

appropriate tools and expertise, together with training on how to employ these technologies, that would enable local governments, other public agencies, and individual citizens to use these sources of information in ecosystem planning and monitoring.

OPTIMISM FOR THE FUTURE

SNEP assessments reveal a great wealth of knowledge, expertise, and involvement in the ecological integrity of the Sierra. The concern of many individuals and groups for the region's future is of long standing and well known. Less publicized is that, in some areas, people with strong ties to the region have already joined together to assess environmental conditions and to create dynamic regional strategies for resource management and environmental stewardship. In the process, diverse communities are being engaged in the search for solutions. As dialogues about collaboration begin to occur across ownerships and jurisdictions, one can anticipate the development of further solutions to issues that are best observed and addressed at the landscape or watershed scale.

After many years of attempting unsuccessfully to "declare" various natural resources policies, agencies now realize that no single optimal policy can be delineated, much less implemented. Local and regional approaches to problem solving, however, are complementary to central planning and can make positive contributions to ecosystem conservation. Regional and subregional delineation, as it occurs, will further involve shared responsibility, power, and leadership by individuals and groups who are quite capable of working with public resource agencies to develop solutions to many resource management problems. Agencies can learn from people while not abdicating responsibility for ensuring that the public interest is protected. Public enthusiasm can make an enormous difference. If the energy and optimism now present in the region and in the larger Sierra community can be embraced, society will gain a great opportunity to move resource policy forward in the Sierra. On the other hand, if public concern and awareness are not channeled into current efforts to address the environmental issues in the Sierra, many institutions and individuals who now willingly give their time and energy to this cause may become discouraged and turn away from collaborative efforts.

SNEP's research, assessments, and strategies offer confidence that a change in approach to management of natural resources and ecosystems is possible, desirable, and indeed already under way in parts of the Sierra. The next phase in improving environmental quality in many areas of the Sierra involves less focus on redrawing jurisdictional boundaries or enacting more stringent mandates and more focus on building coalitions and stronger communities.


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